

Bonn. zool. Beitr.	Bd. 47	H. 3–4	S. 421–428	Bonn, September 1998
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## ***Gorbothorax* n. gen., a new linyphiid spider genus from the Nepal Himalayas (Arachnida, Araneae, Linyphiidae)<sup>1)</sup>**

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**Abstract.** A new spider genus, *Gorbothorax* n. gen., and four new species, *comatus* n. sp. (the type species), *conicus* n. sp., *setifer* n. sp., and *ungibbus* n. sp., are described from the Nepal Himalayas. One more species is transferred to *Gorbothorax*, i.e. *maculatus* (Wunderlich, 1974), comb. n. ex *Oedothorax* Bertkau, 1883.

**Key words.** Arachnida, Linyphiidae, taxonomy, Nepal.

This work continues my studies on the linyphiid fauna of Nepal, this time devoted to the description of a new genus and a few new species. Holo- and the majority of paratypes have been deposited in the Senckenberg Museum, Frankfurt a. M. (SMF), some paratypes have become part of the collections of the Zoological Museum of the Moscow State University, Moscow (ZMMU) and the Zoologisches Forschungsinstitut und Museum A. Koenig, Bonn (ZFMK).

The following abbreviations are used in the text and the figures: Ti — tibia, Mt — metatarsus, Tm I — position of the metatarsal trichobothrium, ED — embolic division, SA — suprategular apophysis.

Chaetotaxy is given in the following formula: 2.2.1.1 refers to the number of dorsal spines on Ti I–IV. The sequence of leg segments in the measurement data is as follows: femur + patella + tibia + metatarsus + tarsus. All measurements are given hereinafter in mm. Scale — 0.1 mm, if not otherwise indicated.

### ***Gorbothorax* n. gen.**

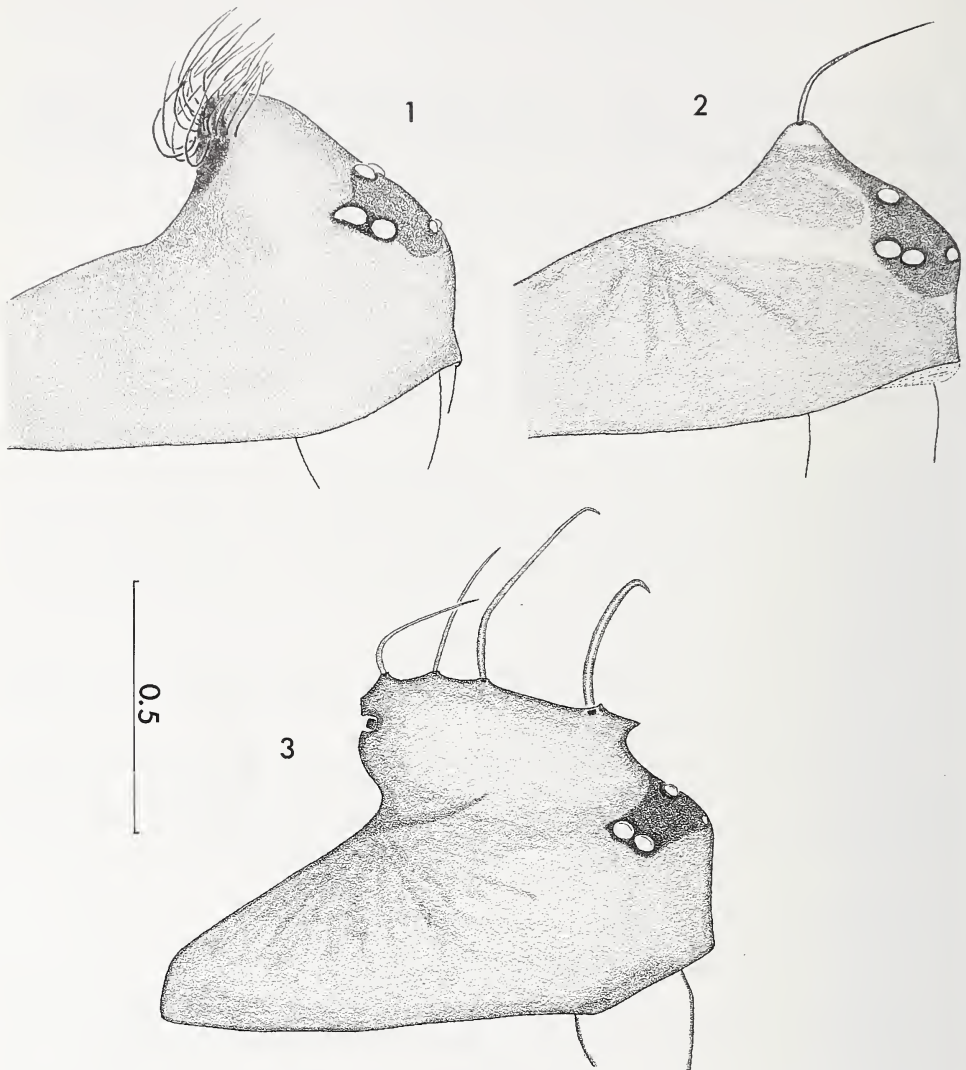
Type species: *Gorbothorax comatus* n. sp.

**Etymology:** The generic name refers to the specific shape of the male carapace, both deriving from *gorb* (in Russian meaning “hump”), and Latin *thorax*.

**Diagnosis:** The genus is characterized by the combination of the following features: chaetotaxy 2.2.1.1, presence of a trichobothrium on Ti IV and its distal position on Ti I, large paracymbium, large, complete and well sclerotized suprategular apophysis, the embolic division divided into two separate sclerites, embolus long and thin.

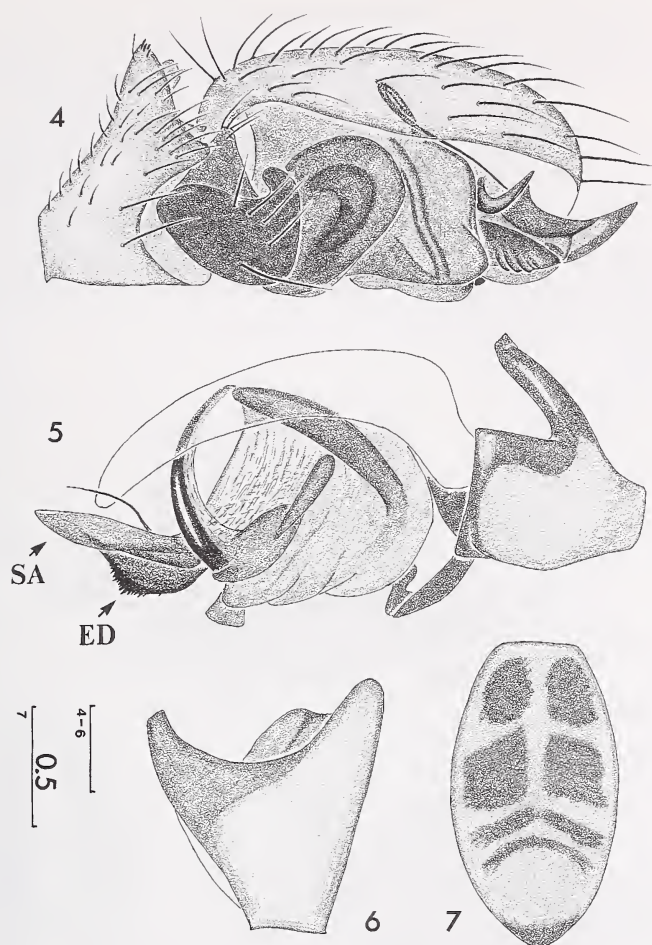
**Description:** Medium-sized erigonines, total length 1.80–2.60, with a pale brown coloration and a distinct abdominal pattern. Male carapace modified (except in *ungibbus* n. sp.). Chelicerae proportionate in size with cephalothorax, unmodified,

<sup>1)</sup> Results of the Himalaya Expeditions of J. Martens, No 216. — For No. 215, see Senckenbergiana biol. 77, 1997. — J. M. sponsored by Deutscher Akademischer Austauschdienst and Deutsche Forschungsgemeinschaft.



Figs 1—3: Male carapace of *Gorbothorax* spp. — 1) *comatus* n. sp., paratype from Mai Pokhari; 2) *conicus* n. sp., holotype; 3) *setifer* n. sp., holotype.

without frontal tooth. Chaetotaxy 2.2.1.1. Each metatarsus with a trichobothrium. Tm I: 0.70—0.85. Palpal tibia modified, with two outgrowths: a thick and rounded dorso-retrolateral as a rule bearing a few very short, thick, terminal spines, and a dorso-prolateral one. Paracymbium relatively large, black, carrying several spines in distal part. Suprategular apophysis well-developed and sclerotized, complex in shape. Embolic division divided into two separate sclerites connected with short, poorly visible membrane. The first sclerite — embolus — long, thin and curved. The second



Figs 4—7: *Gorbothorax comatus* n. sp., male paratype from Mai Pokhari. — 4,5) right palp; 6) palpal tibia (dorsal view); 7) abdomen (dorsal view).

one is relatively large, well sclerotized and elongated. The latter was previously called by Merrett (1963) “lamella”, and as this term was wittingly invalid, the author and followers have used it in quotation marks. For this separated sclerite of the embolic division, which connects with the embolus by the membrane, I propose a new term, convector, which in Latin means “companion”. This term may apply at least to the closely related genera of the *Gongylidium* genus group of Millidge (1977), *Oedothorax* Bertkau, 1883, *Gongylidium* Menge, 1868, *Gongylidioides* Oi, 1960 and *Gorbothorax* n. gen. In these genera this sclerite is obviously homologous.

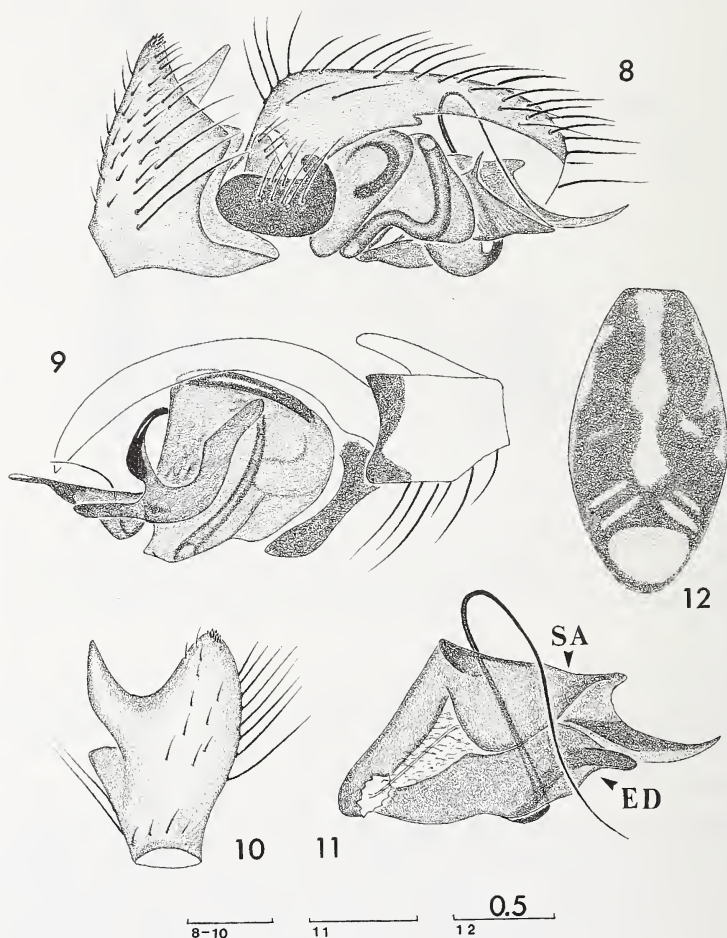
**Taxonomic remarks:** This genus is a member of the *Gongylidium* genus group of Millidge (1977) and closely related to the Far-Eastern *Gongylidioides*. *Gorbotho-*



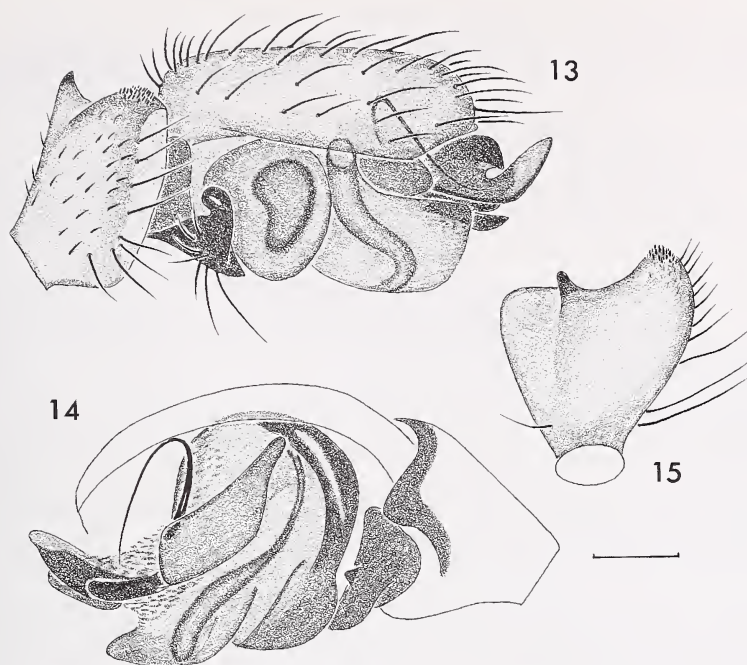
rax n. gen. differs by the shape of the convector (elongate and without outgrowth) and a curved embolus. From *Oedothorax*, another closely related genus, the new genus differs by a well-developed and sclerotized suprategular apophysis and a long embolus.

**Species included:** The new genus currently comprises five species, four of them being new to science. These are *comatus* n. sp., *conicus* n. sp., *setifer* n. sp., and *ungibbus* n. sp., as well as *maculatus* (Wunderlich, 1974), comb. n. ex *Oedothorax*.

**Distribution.** All species of *Gorbothorax* are distributed in the Nepal Himalayas. The close relation to *Gongylidioides* demonstrates important relationships between Himalayan and East Asian faunas.



Figs 8–12: *Gorbothorax conicus* n. sp., male paratype from Omje Kharka. — 8,9) right palp; 10) palpal tibia (dorsal view); 11) embolic division; 12) abdomen (dorsal view).



Figs 13–15: *Gorbothorax setifer* n. sp., male holotype. — 13,14) right palp; 15) palpal tibia (dorsal view).

***Gorbothorax comatus* n. sp. (Figs 1, 4–7)**

**Material:** Holotype male (SMF), Nepal, Panchthar Distr., Paniporua, 2300 m, mixed broadleaved forest, 16.–20. IV. 1988, leg. J. Martens & W. Schawaller. — Paratypes: 4 males (SMF), 1 male (ZFMK), 1 male (ZMMU), same locality, together with holotype; 2 males (SMF), Ilam Distr., Mai Pokhari, 2100–2200 m, forest, 25.–27. III. 1980, leg. J. Martens & A. Ausobsky; male (SMF), Panchthar Distr., between Paniporua and Hinwa Khola Valley, 1850–2300, cultivated land, tree-rich, 20. IV. 1988, leg. J. Martens & W. Schawaller; 2 males (SMF), Taplejung Distr., Yamputhin, cultivated land, open forest, 1650–1800, 26. IV.–1. V. 1988, leg. J. Martens & W. Schawaller.

**Etymology:** The specific name can be translated from Latin as “shaggy”.

**Diagnosis:** The new species is well recognizable by the specific shape of the male carapace, as well as by the shape of the frontal part of the convector, which carries numerous small, pointed teeth.

**Description:** Male (female unknown). Total length 2.33. Carapace 1.13 long, 0.80 wide, pale reddish-brown. Cephalic part of carapace behind eye area with a hump-shaped elevation carrying numerous long, curved spines (Fig. 1). Chelicerae 0.40 long. Legs pale brown. Leg I 4.01 long ( $1.10 + 0.30 + 1.03 + 0.95 + 0.63$ ), IV—4.10 long ( $1.15 + 0.30 + 1.05 + 1.05 + 0.55$ ). Chaetotaxy 2.2.1.1. Each metatarsus with a trichobothrium. Tm I—0.70. Palp (Figs 4–6): Dorso-retrolateral outgrowth of tibia conical, with several very short spines terminally, dorso-prolateral outgrowth blunt. Paracymbium large, dark, carrying a few spines in distal part. Frontal part of convector black, with numerous small teeth. Abdomen 1.23 long, 0.85 wide, pattern as in Fig. 7.

**Taxonomic remarks:** This species is closely related to *conicus* n. sp., being well distinguished by the shape of the cephalic elevation, frontal process of the embolic division (narrow and toothless in *conicus* n. sp., thick and serrate in *comatus* n. sp.), and longer embolus.

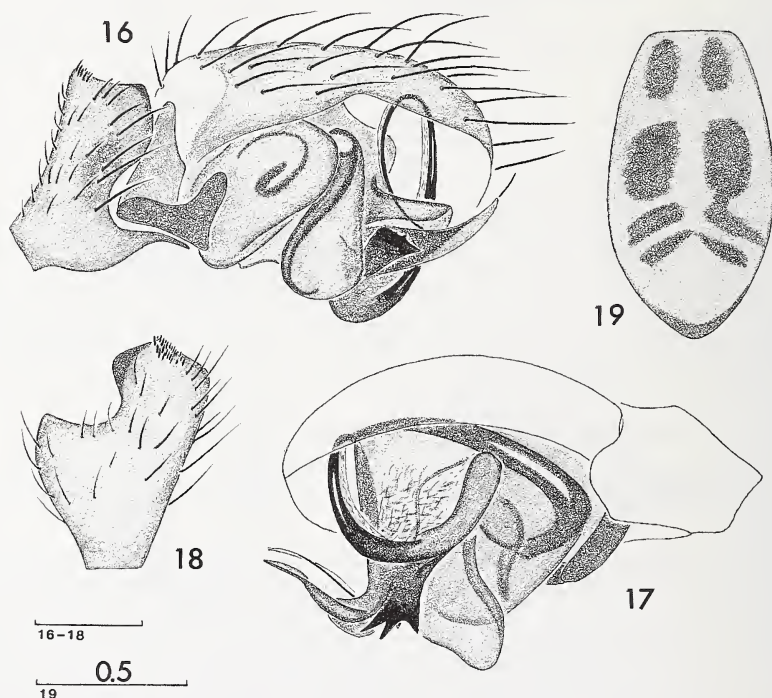
***Gorbothorax conicus* n. sp. (Figs 2, 8–12)**

**Material:** Holotype male (SMF), Nepal, Taplejung Distr., ridge Lasse Dhara und pasture Lassetham, 3000–3300 m, 6–7. IX. 1983, leg. J. Martens & B. Daams. Paratype: male (ZFMK), Taplejung Distr., Omje Kharka NW Yamputhin, natural mixed broadleaved forest, 2300–2500 m, 1–6. V. 1988, leg. J. Martens & W. Schawaller.

**Etymology:** The specific name describes the shape of the male cephalic elevation.

**Diagnosis:** The new species is well recognizable by the specific shape of the male carapace, as well as by the shape of the palpal tibia and long, narrow and pointed distal part of the supratragular apophysis.

**Description:** Male (female unknown). Total length 2.43. Carapace 0.93 long, 0.75 wide, pale reddish-brown. Cephalic part of carapace partly depigmented, with a conical “hump” behind eye area carrying long, strongly curved setae (Fig. 2). Chelicerae 0.45 long. Legs pale brown. Leg I 3.39 long ( $0.93 + 0.28 + 0.83 + 0.80 + 0.55$ ), IV—3.46 long ( $0.95 + 0.25 + 0.85 + 0.88 + 0.53$ ). Chaetotaxy 2.2.1.1. Each metatarsus with a trichobothrium. Tm I—0.70. Palp (Figs 8–11): Dorso-retrolateral outgrowth of tibia conical, with several very short spines terminally, dorso-prolateral outgrowth pointed. Paracymbium dark, carrying a few spines in



Figs 16–19: *Gorbothorax ungibbus* n. sp., male holotype. — 16,17) right palp; 18) palpal tibia (dorsal view); 19) abdomen (dorsal view).





Fig. 20: Collecting sites of *Gorbothorax* species in Nepal (Martens collection). — 1) between ridge Lassedara and pasture Lassetham, also Omje Kharka (*G. conicus* n. sp.); 2) Yamputhin (*G. comatus* n. sp.); 3) Tinjura Dara (*G. setifer* n. sp.); 4) Paniporua and descent to Hinwa Khola (*G. comatus* n. sp.); 5) Mai Pokhari (*G. comatus* n. sp.); 6) Sanishare (*G. ungibbus* n. sp.). — According to species: *G. comatus* n. sp.: 2, 4, 5; *G. conicus* n. sp.: 1; *G. setifer* n. sp.: 3; *G. ungibbus* n. sp.: 6.

distal part. Suprategular apophysis large, distally elongate to slightly curved and pointed. Frontal part of convector narrow, toothless. Abdomen 1.53 long, 0.95 wide, dorsal pattern as in Fig. 12.

Taxonomic remarks: This species is closely related to *comatus* n. sp. (see above).

### *Gorbothorax setifer* n. sp. (Figs 3, 13–15)

Material: Holotype male (SMF), Nepal, Terhathum Distr., Tinjura Dara, 2450–2850 m, species-rich broadleaved forest, Berlese funnels, 17. IX. 1983, leg. J. Martens & B. Daams.

**Etymology:** The specific name is derived from both *seta* meaning a “strong spine”, and *ferens* meaning “bearing”.

**Diagnosis:** The new species is well distinguishable from other congeners by the very peculiar shape of the carapace, structure of the palpal tibia, as well as by the shape of the suprategular apophysis.

**Description:** Male (female unknown). Total length 2.55. Carapace 1.20 long, 0.85 wide, greyish-brown, modified as in Fig. 3. Chelicerae 0.50 long. Legs pale brown. Leg I 4.22 long ( $1.18 + 0.33 + 1.05 + 1.03 + 0.63$ ), IV—4.27 long ( $1.23 + 0.30 + 1.03 + 1.13 + 0.58$ ). Chaetotaxy 2.2.1.1, leg spines very short. Each metatarsus with a trichobothrium. Tm I—0.77. Palp (Figs 13–15): dorso-retrolateral outgrowth of tibia rounded, with numerous, very short, barb-like spines terminally, dorso-prolateral outgrowth small. Distal part of paracymbium narrow, dark, carrying a few spines. Suprategular apophysis large, complex in shape. Frontal part of convector narrow, dark. Abdomen 1.38 long, 0.88 wide, dark grey, dorsal pattern very vague.

***Oedothorax unguibbus* n. sp. (Figs 16—19)**

**Material:** Holotype male (SMF), Nepal, Ilam Distr., Sanishare, 5 km N, feet of Siwalik Mts., 270—300 m, mixed *Shorea* forest, 3.—5. IV. 1988, leg. J. Martens & W. Schawaller.

**Etymology:** The specific name describes the shape of the male carapace referring to the absence of a “hump”.

**Diagnosis:** The new species is diagnosed by the unmodified male carapace, relatively small and spineless paracymbium, very long and curved embolus, as well as by the shape of the frontal part of the convector.

**Description:** Male (female unknown). Total length 1.83. Carapace 0.85 long, wide, 0.68, greyish-yellow, unmodified. Chelicerae 0.38 long. Legs pale yellow. Leg I—3.23 long (0.88 + 0.24 + 0.85 + 0.78 + 0.48), IV—3.13 long (0.85 + 0.20 + 0.80 + 0.83 + 0.45). Chaetotaxy 2.2.1.1. TmI—0.84. Palp (Figs 16—18): Dorso-retrolateral outgrowth of tibia with several very short spines terminally. Paracymbium relatively small, spineless. Suprategular apophysis complex in shape, distally pointed. Embolus very long and curved. Frontal part of the convector with several large black teeth. Abdomen 1.03 long, 0.65 wide, dorsal pattern as in Fig. 19.

***Gorbothorax wunderlichi* (Brignoli, 1983) comb. n.**

*Oedothorax maculatus* Wunderlich, 1974. Senckenbergiana biol. 55: 185, figs 51—58.

*Oedothorax wunderlichi* Brignoli, 1983. A Catalogue of the Araneae: 324, nom. nov. pro *Oedothorax maculatus* Wunderlich, 1974, praecoc.

This species was described from East Nepal by Wunderlich (1974) as *Oedothorax maculatus* Wunderlich, 1974. According to the above author's figures, this is a good member of *Gorbothorax*, comb. n. ex *Oedothorax*.

The collecting sites of all species mentioned are shown in Fig. 20.

**Acknowledgements**

I am very grateful to Prof. J. Martens (Mainz) and Dr. W. Schawaller (Stuttgart), whose collections served as the basis for the present paper. In addition, Dr. S. I. Golovatch (Moscow) kindly checked the English of the final draft. This work was partly supported by the Soros Foundation (“Biodiversity”).

**Zusammenfassung**

Auf der Basis von in Nepal gesammelten Materials wird die Spinnengattung *Gorbothorax* n. gen. mit den vier Arten *comatus* n. sp. (Typusart), *conicus* n. sp., *setifer* n. sp., und *unguibbus* n. sp. beschrieben. Eine weitere Art wird von *Oedothorax* Bertkau, 1883 nach *Gorbothorax* transferiert.

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Jahr/Year: 1997/1998

Band/Volume: [47](#)

Autor(en)/Author(s): Tanasevitch Andrei V.

Artikel/Article: [Gorbothorax n. gen., a new linyphiid spider genus from the Nepal Himalayas \(Arachnida, Araneae, Linyphiidae\) 421-428](#)